

Gas unit heaters product line G Series

Condensing and modulating Gas Fired Unit Heaters
to heat medium large areas

Natural gas/LPG fired



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Robur turns the LOVE FOR BEAUTY AND WELL-MADE THINGS into innovative heating and cooling systems that are especially designed and developed to answer the specific Man needs.

Robur Vision

Robur is dedicated to dynamic progression in research, development and promotion of safe, environmentally-friendly, energy-efficient products, through the commitment and caring of its employees and partners.

Robur Mission

Due to continuous product innovation and development, Robur reserves the right to change the product specifications without prior notice.

A significant step towards Efficiency, Savings and Environmental Awareness

Robur, founded in 1956, researches, develops and produces natural gas heating and air conditioning systems with high efficiency and low environmental impact.

An exclusive feature of Robur products is their use of renewable energy sources, meaning that less pollutants are released into the atmosphere and that notable energy savings are guaranteed.

Certified quality and latest recognition

- 1995** - ISO 9001 certification
- 2000** - 1st Prize in the Italian Regional Quality Award
- 2001** - Robur is the first ISO 9001: 2000 (Vision 2000) certified company in Europe in HVAC sector
 - 1st Prize Italian National Quality Award
- 2003** - Special Prize Winner of the European Quality Awards
 - Robur gas absorption heat pumps were included in the recommended designs group of the Environmentally Friendly Innovation Award
 - Robur, with its reversible gas absorption heat pump, claimed the Technological Innovation Award
- 2004** - Benito Guerra, chairman of Robur, received a nomination as finalist in the "Quality of life" category of the National Businessman of the Year Award, promoted by Ernst & Young
- 2005** - ISO 14001:2004 certification
 - The K range of gas-fired heaters and the GAHP-W range of gas absorption heat pumps won the honourable mention of the HVAC&R Innovation Prize sponsored by Costruire Impianti
- 2006** - Honourable mention at AHR Expo Innovation Award sponsored by ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers, USA)
- 2007** - Mentioned as best product category for gas-fired heat pumps as part of the Impresa Ambiente Prize
 - Special mention in Enterprise Prize for Innovation promoted by Confindustria



Condensing technology enters in the world of Gas Fired Unit Heaters offering higher efficiency and energy savings for human and environmental comfort thanks to the automatic modulation of the flame and ventilation.

G Series Condensing

Variable fan speed and modulated heat input

Direct exchange heating is the quickest and cheapest heating system for medium large premises and assumes from today another very important characteristic: the condensing of combustion flues which permits to reach high thermal efficiencies. That means: energy savings with short term payback, low environmental impact and more comfort for people, maintaining the advantages of the direct exchange heating system.

Ideal applications

These Gas Fired Unit Heaters can be used efficiently in all medium- large premises, such as:

- workshops and factories;
- all premises where high comfort and high efficiency are required;
- commercial buildings and show rooms;
- sports halls and fitness centres.



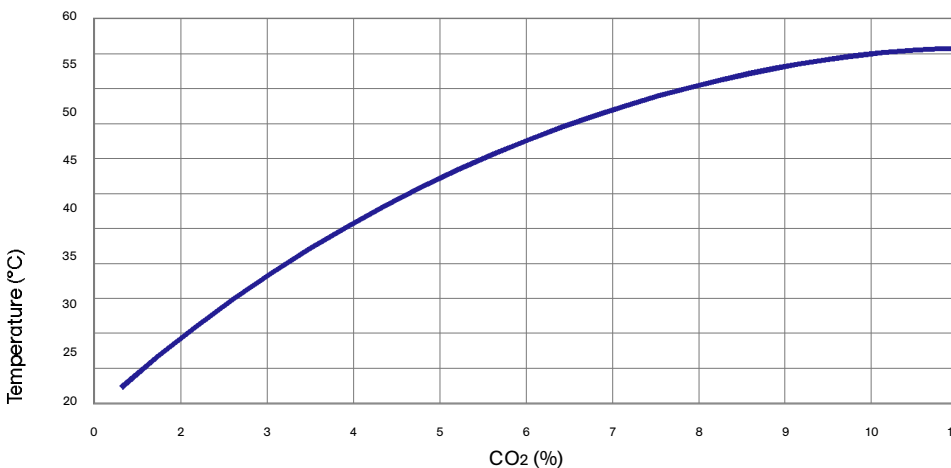
Condensing system in Gas Fired Unit Heaters

Exhaust flues of the combustion process in a Gas Fired Unit Heater contain a lot of energy, that could be used for the heating of a fluid (water or air). In the traditional heating units the high heat of the flues is used to warm a fluid (water for boilers; air for cabinet heaters) through a suitable heat exchanger. The combustion flues contain not only the sensible energy, but also the latent energy as water vapour. Well-known, flues are not only hot, but also humid, with a sensible quantity of water vapour that could be favourably used.

In a condensing gas fired unit heater, the heat of the flues is given to the ambient ventilation thanks to the particular heat exchangers in which the flues have been cooled by the heated ventilation air. The flue temperature decreases (sensible heat) maintaining in any case its water vapour. If the combustion flues become even cooler inside the heater, below to a certain temperature (roughly 60°C), the water vapour will condensate. This operation is very useful from the energetic point of view because it gives to the distribution air also the heating

of the latent heat produced by the condensation. The heating of the water vapour, normally wasted through the exhaust flue pipe, will be used for free increasing the efficiency of the system and with low environmental impact. Condensing permits nowadays to increase the efficiency of the gas fired air to air unit heaters, exploiting as better as possible the heat of the combustion. Robur condensing gas fired unit heaters join high efficiencies comparable to the best condensing boilers, adding the famous plus offered by these products as the absence of

intermediate fluid, low thermal inertia, no water plant and central heating.



Temperatures of the DP (dew point) of the combustion flues of natural gas, comparing to the CO2 concentration.



Designed and manufactured by using the best components to provide exceptionally high efficiencies, improved comfort and ultra low emissions.

Inside the technology of G Condensing Gas Fired Unit Heaters

Fully modulation for comfort

Compared to traditional ON- OFF heating system, G series Gas Fired Unit Heaters can offer better comfort in the environment, thanks to the continuous modulating and regulation system of the heating output and airflow.

With the indoor digital chronothermostat, the unit heater can feel the effective inside temperature and can **modulate correctly the heating output and the airflow**, in order to obtain comfortable temperatures for workers in any heating operational condition.

The modulation of heating output from 100% to 30% of nominal rate **permits to obtain very high combustion efficiency, even over 105%**, on the other hand the modulation of ventilation allows a better comfort and more energy savings. Just modifying the

electronic control you can set G heaters working with modulation of the **heating output and 100% of air flow**.

Complete gas/air premixing burner

The burner in stainless steel and its combustion are controlled with an advanced microprocessor in order to grant the best gas/air ratio in all operational conditions, and

consequently granting CO and NOx emissions practically nil. The control of the total premix combustion permits also to avoid problems on the exhaust flue system.

Ground effect heat exchangers

Heat exchangers in aluminium special alloy installed in all G Series Gas Fired Unit Heaters, offer to the ambient the unique "Ground Effect", patented characteristic of all Robur Gas Fired Unit Heaters, reducing

dramatically the thermal stratification in the environment.

The winning characteristics of G series Gas Fired Unit Heaters

• **High thermal efficiency and respect of the new norms about the heating installation system.** The choice of condensation for Gas Fired Unit Heaters allows to obtain thermal efficiencies over 105% and consequently comparable with the best condensing boilers on the market. The remarkable advantage of Gas Fired Unit Heaters is that the water distribution is not required, presenting a better global efficiency of the system.



• **Perfect modulation of the heating output.** The energy needed is granted by the heaters in a uniform and adequate mode for any single part of the premises. Each heater is able to give its own heating output proportioned to heating demand. In this way the modulation will support an average efficiency of functioning much more higher than the nominal value of the system and a constant ambient temperature in any functioning condition.



• **Direct exchange heating system.** Robur system avoids the need to install costly water pipeline that needs to be maintained in temperature during long stops during wintertime and its thermal inertia is very low.



• **No central heating plant.** Even with very high efficiency range, Gas Fired Unit Heaters do not require a central heating plant or any other additional building costs.



Efficiency	Condensing Gas Fired Unit Heaters G Series	Condensing boiler and radiant panels
Of generation (average)	102%	104%
Of distribution	100%	97%
Of emission	98%	98%
Of regulation	98%	96%
Total	97,9%	94,9%

This is an example of comparison about global efficiency of two different industrial heating system, the first with Robur condensing Gas Fired Unit Heaters, the second with a condensing boiler and distribution system by using underfloor heating system. Any values have been estimated.

The installation

In spite of the introduction of condensation in order to get a sensible improve of the thermal efficiency, the installation of G Series Gas Fired Unit Heaters is not different from the one of any other gas unit heater. The only difference is the installation of a condensate

drain, in accordance to local regulations. For this reason the Unit Heater is equipped with a specific condensate traps and a siphon to be connected to the heater.



Electronic system and setting of the unit

Robur G Series Gas Fired Unit Heaters have been designed with an electronic system for the control and setting by microprocessor, in order to permit the regular functioning of the unit in any condition of use. The electrical board checks constantly the functioning of the burner, the blower, the fans, monitoring the ambient temperature by the remote control, modulating perfectly the heating output and the ambient ventilation. In a standard winter season the heater would remain mostly of the time in modulation mode, joining the best combustion efficiencies.

The electronic control permits to obtain not only a perfect regulation of the heating required, but also an adequate and constant combustion ratio with a minimum value of pollution in the environment. The digital chronothermostat, supplied as standard with G condensing gas fired heaters, offers important control functions, resulting in a more precise and economical use of the installation. With a simple connection via a shielded dual-conductor cable, it is possible to control the electronic circuit board of each gas unit heater to obtain the following functions:

- programmable timer for three separate temperature levels (comfort, reduced or freeze protection);
- winter operation in three selectable modes:
 - automatic: the heater adjusts the heating output and air flow rate to suit indoor temperature;
 - manual: the heater operates at one of 3 levels of heating output, which can be set manually;
 - anti-frost: the heater prevents the indoor temperature from falling below the freeze protection level set;
- summer operation (ventilation only) with manual selection of ventilation speed;

- operational and fault diagnostics, with warning signals and alarm reset.
 - Set the functioning of the fan in modulating or fixed mode;
 - Check the functioning or the lock out of the unit.
- In addition, if more than one heater is installed in the same indoor space, it is possible to centralize the operation of all heaters, thus keeping unchanged the functions provided by the supplied chronothermostat.

Accessories included

Each condensing G Series heater is equipped with:

- condensate siphon to be installed;
- Use and maintenance manual of the heater;

- Wall template;
- Kit LPG;
- Digital remote control (control, setting and diagnostic of functioning).



			G45	G60	G100
Heat input	nominal	kW	45,0	58,0	93,0
	minimum	kW	15,0	19,3	31,7
Heat output	nominal	kW	43,3	56,2	90,2
	minimum	kW	15,6	20,2	33,5
Efficiency	at the nominal heat input	%	96,3	97,0	97,0
	at the minimum heat input	%	104,3	104,6	105,7
Nominal gas consumption ⁽¹⁾	Natural gas	m ³ /h	4,76	6,14	9,84
	LPG	kg/h	3,50	4,53	7,26
Nominal airflow ⁽²⁾	at maximum speed	m ³ /h	4.000	5.350	8.250
	at minimum speed	m ³ /h	2.340	3.310	5.200
Temperature rise	at maximum speed	K	31,8	30,8	32,1
	at minimum speed ⁽³⁾	K	19,6	17,9	18,9
Gas connection		"M	3/4		
Air inlet pipe diameter		mm	80		
Exhaust flue pipe diameter		mm	80		
Electrical voltage			230 V 1N - 50 Hz		
Potenza elettrica installata		W	450	750	900
Throw at maximum speed in free field ⁽⁴⁾		m	25	31	40
Mounting height		m	2,5/3	3/3,5	3/4
Operating temperature range ⁽⁵⁾		°C	0/35		
Fuse		A	6,3		
Noise level at the maximum speed at 6 meters distance	in free field	dB(A)	48	50	54
	in standard installation	dB(A)	60	61,5	65,5
Noise level at the minimum speed at 6 meters distance	in free field	dB(A)	43	45	49
	in standard installation	dB(A)	55	56	60,5
Weight		kg	66	76	122

⁽¹⁾ At 15 °C - 1013 mbar.

⁽²⁾ At 20 °C - 1013 mbar.

⁽³⁾ Temperature rise of the air which permits to maintain the outlet air flow at a higher temperature than the one of the human body for a better comfort.

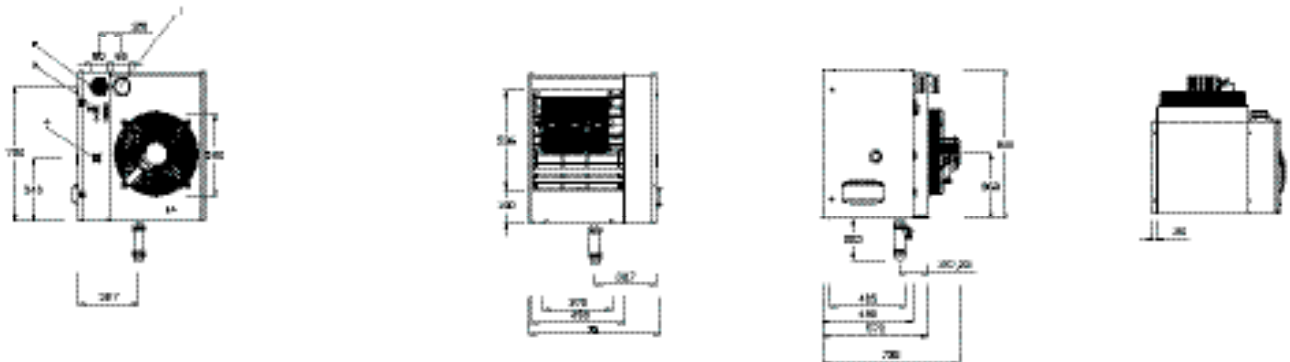
⁽⁴⁾ In typical installation conditions the heat flow can reach distances 2,3 times higher than the value above mentioned (depending on the height of the premise and on the roof insulation).

⁽⁵⁾ Operating temperature range in ambient 0°C/35°C; operating temperature of the components inside the unit 0°C/60°C.

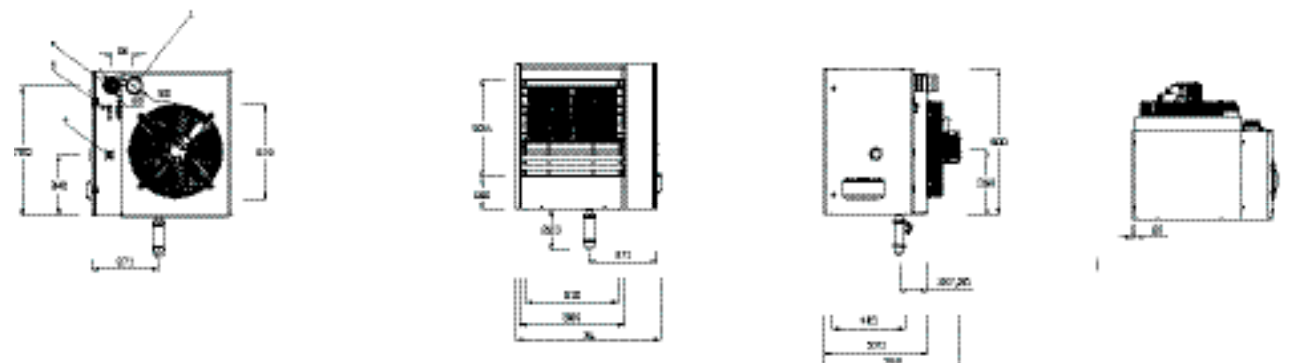
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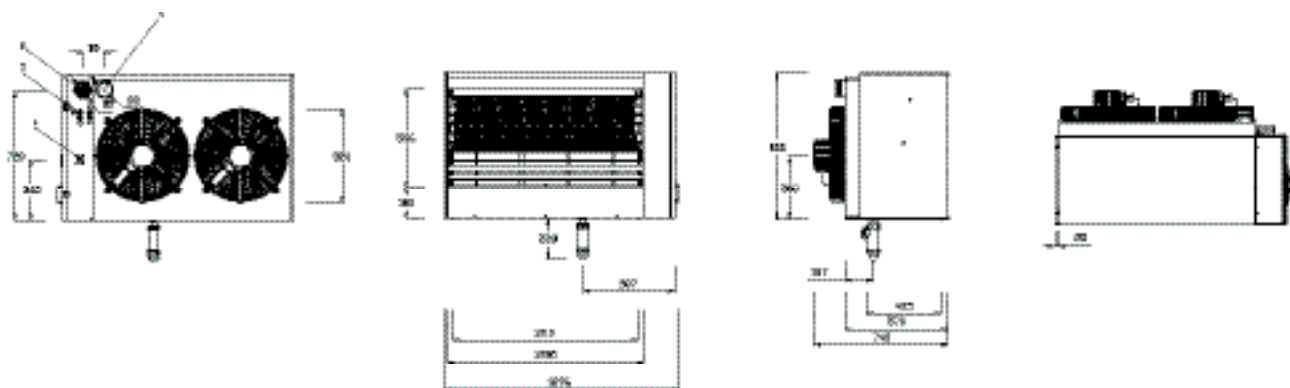
DIMENSIONS OF G 45 MODEL



DIMENSIONS OF G 60 MODEL



DIMENSIONS OF G 100 MODEL



- 1 Flue
- 2 Air intake

- 3 Conduit entry for electrical connection
- 4 Gas supply

Robur Pre-Sales Service

Provides design, technical and normative support to ensure the right choice and the most efficient use of Robur solutions.

T 035 888 111 export@robur.it

Robur Technical Support

A network of specialised service centres approved by Robur ensures effective, fast and safe support for pre-testing, commissioning and maintenance of the system.

T 035 888 111 export@robur.it

Always close to our customers

Robur produces



Hydronic heating systems with condensing absorption heat pump for heating and cooling. Available for geothermal systems too.



Absorption heat pumps, fired by gas and renewable energy for heating and cooling. Available for geothermal systems too.



Low electrical consumption gas fired absorption chillers and chiller-heaters for cooling, heating, refrigeration and process applications.



Gas fired condensing modular boilers for outdoor installation for heating.



Combined heating systems with gas fired boiler and air heater, including condensing systems, for installation sites under legislative restrictions.



Wall-mounted gas fired heaters, even condensing, for heating commercial and industrial spaces.



Evaporative air coolers ideal for medium-sized and large buildings.



Individual forced draught gas fired radiators for heating small and medium-sized spaces.



Air barriers to prevent thermal dissipation from doors of industrial buildings.



caring for the environment

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